14. The method of claim 1, wherein,

at least a portion of the at least one epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer proximate to the substrate is patterned; and

at least a portion of the at least one epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer distal to the substrate is coalesced or continuous and relaxed, having a strain, relative to fully-relaxed $Al_xIn_yGa_{(1-x-y)}N$, of less than 0.01%.

15. The method of claim 1, wherein the at least one $Al_xIn_yGa_{(1-x-y)}N$ layer comprises more than one epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer, wherein

at least a portion of a first epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer overlying the substrate is patterned; and

at least a portion of a second epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer overlying the first epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer is coalesced or continuous and relaxed, having a strain, relative to fully-relaxed $Al_xIn_yGa_{(1-x-y)}N$, of less than 0.01%.

16. The method of claim 1, wherein at least one of x and y is between 0.01 and 0.50.

17. A device comprising a biaxially relaxed epitaxial $Al_xIn_yGa_{(1-x-y)}N$ layer formed by the method of claim 1, wherein the epitaxial $Al_xIn_yGa_{1-x-y}N$ layer is characterized by:

$0 \leq x, y, x+y \leq 1$ and $y>0.10$;

a surface orientation within 5 degrees of a c-plane;

a thickness greater than 100 nanometer;

a concentration of threading dislocations less than 10^8 cm^{-2}; and

a biaxial strain less than 0.1%.

18. A device, comprising at least one layer comprising $Al_xIn_yGa_{1-x-y}N$, wherein the at least one layer is characterized by:

$0 \leq x, y, x+y \leq 1$ and $y>0.10$;

a surface orientation within 5 degrees of a c-plane;

a thickness greater than 100 nanometer;

a concentration of threading dislocations less than 10^8 cm^{-2}; and

a biaxial strain less than 0.1%.

19. The device of claim 18 wherein the device is selected from among a light emitting diode, a laser diode, a photodetector, an avalanche photodiode, a transistor, a rectifier, and a thyristor; one of a transistor, a rectifier, a Schottky rectifier, a thyristor, a p-i-n diode, a metal-semiconductor-metal diode, high-electron mobility transistor, a metal semiconductor field effect transistor, a metal oxide field effect transistor, a power metal oxide semiconductor field effect transistor, a power metal insulator semiconductor field effect transistor, a bipolar junction transistor, a metal insulator field effect transistor, a heterojunction bipolar transistor, a power insulated gate bipolar transistor, a power vertical junction field effect transistor, a cascode switch, an inner sub-band emitter, a quantum well infrared photodetector, a quantum dot infrared photodetector, a solar cell, and a diode for photoelectrochemical water splitting and hydrogen generation.

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